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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Application Number	09/913,745
Filing Date	August 16, 2001
First Named Inventor	McKeown et al.
Group Art Unit	2172
Examiner Name	Jean M. Corrielus
Attorney Docket Number	A32313 - 070050.1589

Total Number of Pages in This Submission

**ENCLOSURES (check all that apply)**

- ☒ Fee Transmittal Form
- ☒ Fee Attached
- ☐ Amendment / Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53

- ☐ Assignment Papers (for an Application)
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
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- ☐ Proprietary Information
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Att Name: Paul D. Ackerman  
PTO Reg: 39,891

Date

January 24, 2005

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Date

January 24, 2005

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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27TOTAL AMOUNT OF PAYMENT (\$)**250**

## Complete if Known

Application Number	09/913,745
Filing Date	August 16, 2001
First Named Inventor	McKeown et al.
Examiner Name	Jean M. Corrielus
Art Unit	2172
Attorney Docket No.	A32313 - 070050.1589

## METHOD OF PAYMENT (check all that apply)

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## FEE CALCULATION

## 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$) <b>0</b>

## 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	- 20 = 0	X	= 0
Multiple Dependent	- 3 = 0	X	= 0

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)**0**

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

## 3. ADDITIONAL FEES

Large Entity Small Entity


Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
Other fee (specify) <b>Brief on Appeal</b>					<b>250</b>

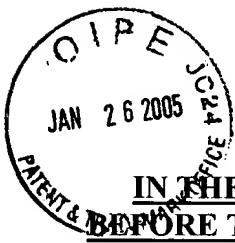
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SUBTOTAL (3) (\$)**250**

## SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Paul D. Ackerman	Registration No. (Attorney/Agent)	39,891	Telephone	212 408-2585
Signature		Date	January 24, 2005		



FILE NO. A32313 – 070050.1589

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**On Appeal to the Board of**

**Appeals and Interferences**

Appellant(s) : McKeown et al.

Serial No. : 09/913,745

Filed : August 16, 2001

Customer No. : 21003

For : MULTI-DOCUMENT SUMMARIZATION SYSTEM AND METHOD

Examiner: Jean M. Corrielus

Art Unit: 2172

**BRIEF ON APPEAL**

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Paul D. Ackerman

Attorney Name

39,891

Registration No.

Signature

January 24, 2005

Date of Signature

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### STATUTES

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35 U.S.C. § 112 .....	<i>Passim</i>



FILE NO. A32313 – 070050.1589

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**On Appeal to the Board of  
Appeals and Interferences**

Appellant(s) :	McKeown et al.	Examiner:	Jean M. Corrielus
Serial No. :	09/913,745	Art Unit:	2172
Filed :	August 16, 2001		
For :	MULTI-DOCUMENT SUMMARIZATION SYSTEM AND METHOD		

**BRIEF ON APPEAL**

On November 26, 2004, Appellant filed a Notice of Appeal in the above-identified patent application from the final rejection of claims 1-22 memorialized in the Final Official Action issued by the U.S. Patent and Trademark Office (the “PTO”) on June 1, 2004.

In accordance with 37 C.F.R. § 1.192(a), one copy of this brief is submitted in support of the appeal of the final rejection of pending claims 1-22. For the reasons set forth below, the final rejection of pending claims 1-22 should be reversed.

**I. REAL PARTY IN INTEREST**

The real party in interest is The Trustees of Columbia University in the City of New York (“Columbia”). Columbia is the assignee of the entire right, title, and interest in the present application by way of Assignment dated November 16, 2001 recorded on December 10, 2001 at Reel 012357 and Frame 0797.

**II. RELATED APPEALS AND INTERFERENCES**

Appellant and the Appellants’ legal representatives are unaware of any appeals or interferences related to the present application which will directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.

**III. STATUS OF CLAIMS**

Claims 1-22 stand finally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants hereby appeal the rejection of these claims.

Claims 1-4, 6-11, 13-19 and 21-22 stand finally rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,098,034 to Razin et al., entitled *Method For Standardizing Phrasing In A Document* (“Razin”). Applicants hereby appeal the rejection of these claims.

Claims 5, 12 and 20 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

A copy of all of the pending claims is attached hereto in the Appendix.

**IV. STATUS OF AMENDMENTS**

Subsequent to the issuance of the Final Official Action dated June 1, 2004, Applicants filed an amendment in response to the final rejection. On December 13, 2004, the PTO issued an Advisory Action indicating that the proposed amendments would not be entered because they raised new issues that would require further consideration and/or search.

**V. SUMMARY OF INVENTION**

The invention described in the above-identified application is directed to a method and a system for generating a summary of a plurality of related documents in a collection. (*See Applicants' Specification*, page 2, lines 15-19). A method for generating the summary of related documents in a collection includes, *inter alia*, extracting phrases from the plurality of document which have common focus elements. (*See id.*, lines 20-22). The extracted phrases then undergo phrase intersection analysis to generate a phrase intersection table. (*See id.*, lines 22-23). Temporal processing is performed on the phrases in the phrase intersection table to remove ambiguous temporal references and to sort the phrases in a temporal sequence. (*See id.*, lines 23-25). A summary of the plurality of related documents is generated by performing sentence generation using the phrases in the phrase intersection table. (*See id.*, lines 25-26).

A system for generating a summary of a plurality of related documents in a collection includes, *inter alia*, a storage device for storing the documents in the collection, a lexical database, and a processing subsystem. (*See id.* at 3, lines 19-21). The processing subsystem is operatively coupled to the storage device and the lexical database. (*See id.*, lines 21-22). The processing subsystem is programmed to perform multiple document summarization



including accessing the plurality of related documents in the storage device and generate a summary. (*See id.*, lines 22-23). The processing subsystem performs the summarization using the lexical database to extract phrases from the documents with similar focus elements, performing phrase intersection analysis on the extracted phrases to generate a phrase generation table, performing temporal processing on the phrases in the phrase generation table, and performing sentence generation using the phrases in the phrase generation table. (*See id.*, lines 23-28).

The methods described above can be encoded in the form of a computer program stored in computer readable media, such as CD-ROM, magnetic storage and the like. (*See id.*, lines 29-31).

## VI. ARGUMENTS

### 1. Rejection Under 35 U.S.C. § 103

#### a. Relevant Case Law and Procedure(s)

In the Office Action dated June 1, 2004, Claims 1-4, 6-11, 13-19 and 21-22 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over a single reference, U.S. Patent No. 6,098,034 to Razin et al., entitled *Method For Standardizing Phrasing In A Document* (“Razin”). Applicants respectfully traverse this rejection.

As the Federal Circuit has held, “[t]o reject claims in an application under Section 103, an examiner must show an un rebutted *prima facie* case of obviousness.” *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998). Using the Supreme Court’s guidelines enunciated in *Graham v. John Deere*, 383 U.S. 1, 17 (1966), one determines “obviousness” as follows:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the

claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Indeed, to sustain a rejection under 35 U.S.C. § 103(a), there must be a teaching, other than that provided by the instant application, to motivate one skilled in the art to alter the prior art to arrive at the claimed invention. Further, “whether a novel structure is or is not ‘obvious’ requires cognizance of the properties of that structure and the problem which it solves, viewed in light of the teachings of the prior art.” *In re Wright*, 848 F.2d 1216, 1219 (Fed. Cir. 1988).

Thus, “[a] showing of obviousness requires a motivation or suggestion to combine or modify prior art references, coupled with a reasonable expectation of success.” *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Co.*, 320 F.3d 1339, 1354 (Fed. Cir. 2003). In doing so, the Examiner has an obligation to construe the scope of the prior art, identify the differences between the claims and the prior art, and determine the level of skill in the pertinent art at the time of the invention. *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998). The Examiner must then provide a cogent reason based on the foregoing why it would be obvious to modify the prior art to arrive at the claimed invention. “The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.” *In re Gordon*, 733 F.2d 900, 901 (Fed. Cir. 1984).

**b. Claims 1-4, 6-11, 13-19 and 21-22 are Patentable Over Razin**

Appellant respectfully asserts that Razin fails to teach or suggest Appellant’s invention, as recited in claims 1-22. Claim 1 recites a method for generating a summary of a plurality of related documents in a collection. This includes, *inter alia*:

extracting phrases having focus elements from the plurality of documents;  
 performing phrase intersection analysis on the extracted phrases to generate a phrase intersection table;  
 performing temporal processing on the phrases in the phrase intersection table; and  
 performing sentence generation using the phrases in the phrase intersection table.

The present claims are directed to systems and methods for generating a summary of a *plurality of related documents*. In other words, the purpose of the present invention is to provide a coherent summary of a *collection* of documents that contain related information. [See Applicants' Abstract and Specification, page 1, line 15 - page 2, line 13]. Figure 1 illustrates the operation of a *multiple* document summarization system, beginning with receiving a collection of documents and concluding by providing a summary of the collection. [See Figure 1]. Claim 1 recites a method for generating a summary of a *plurality* of related documents comprising, *inter alia*, extracting phrases from a *plurality* of documents. The present application including the title, abstract, drawings, and specification are commensurate with the scope of the plain meaning of the claim language referring to a "plurality of related documents." Thus, the claims, and indeed the application as a whole, are clearly directed to generating a summary for a collection with more than one document.

In contrast, the cited Razin reference refers only to operations performed within, and relating to, a single document. Razin is not directed to summarizing multiple documents, does not disclose or suggest extracting phrases from multiple documents, and does not disclose or suggest temporal processing of extracted phrases. Because Razin fails to teach or suggest operations directed towards a plurality of documents, a *prima facie* showing of obviousness of the pending claims in view of Razin cannot be maintained. At best, Razin discloses a different solution to a different problem.

Razin, as the title suggests: *Method For Standardizing Phrasing In A Document*, only addresses the problem of “identification in a document of user significant phrases.” [See Razin, col. 1, lines 5-6 (emphasis added)]. Once a phrase is standardized, the user can refer to that standard phrase if the user wishes to express a similar idea “throughout the document.” [col. 1, lines 5-19; col. 2, line 63]. Figure 7 illustrates a “Block diagram of computer system for standardizing the phrasing of *a document*.” [col. 3, lines 9-10 (emphasis added)]. Razin’s standardization of phrases within a single document is completely consistent with the stated purpose of the invention, which is “to utilize the same phrasing over others to avoid confusion of meaning” when a user desires to express a particular idea *throughout a document*. [See col. 1, lines 5-19; col. 2, line 63]. As the title, abstract, drawings, and specification indicate, Razin discloses operations to standardize phrases within *a single document*, and does not teach or suggest summarizing a plurality of documents.

The Examiner indicates that Col. 2, lines 43-60 and Col. 3, lines 20-63 of Razin disclose “extracting phrases having focus elements from the plurality of documents.” [See Official Action dated 6/1/2004, p.2]. Col. 2, lines 43-60, however, disclose “standardizing user phrasing in a user-created document.” (emphasis added). The remainder of the cited passage refers to this *single* user-created document three times - referred to as “the document” - and then concludes on lines 60-63 that “[t]he overall result of this method is a list of significant user-created standard phrases and the standardization of approximately matched phrasing *throughout the document*.” (emphasis added). This entire passage (Col. 2, lines 43-63) makes five references to *a single* user-created document, and does not once refer to a plurality of documents. Similarly, Col. 3, lines 20-63, disclose standardizing phrases in a document, and makes reference

to “the document” throughout the remainder of the cited passage. Neither of these cited passages make reference to processing a plurality of documents.

Further, Razin does not teach or suggest temporal processing, as claimed in the present application. The Examiner indicates that Col. 2, lines 43-60 of Razin disclose “performing temporal processing.” [See Official Action dated 6/1/2004, p.3]. This cited passage, however, does not teach or suggest temporal processing. Razin instead discloses two steps to produce a list of standard phrases. The first step is the automatic extracting from the document sequences of words constituting significant user phrases. The second step is the extraction of words that are significantly similar but not identical to the user phrases. [See col. 2, lines 43-60]. Neither these steps nor the resultant list of standard phrases involves temporal processing.

Temporal processing, as claimed by the present application, includes time stamping phrases based on a first occurrence of the phrase in the collection, and substituting date certain references for ambiguous temporal references. The phrases are then ordered, *inter alia*, based on their time stamp to provide a coherent summary. [See Applicants’ Specification, p.3]. Temporal processing, as claimed in the present invention, is needed to sort phrases extracted from a collection, or a plurality, of documents in order to produce a coherent summary. Razin does not teach or suggest temporal processing because Razin only deals with a single document. Therefore, because Razin deals with only a single date certain reference - *a document* - there is no need or motivation for Razin to perform temporal processing, which is used to time sort phrases and remove ambiguous time references from a plurality of documents.

Independent claims 8 and 16 are system and media claims corresponding to the method recited in claim 1, and should be patentable at least for the reasons set forth above. In

view of the absence of any disclosure regarding the noted claim elements or the invention as a whole, Applicants respectfully submit that the independent claims 1, 8, 16 each define patentable subject matter over the art of record. Claims 2-4, 6-7, 9-11, 13-15, 17-19, and 21-22 depend from these claims are patentable at least for the reasons set forth above.

## **2. Rejection Under 35 U.S.C. § 112**

### **a. Relevant Case Law and Procedure(s)**

In the Office Action dated June 1, 2004, claims 1-22 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Examiner indicates that the body of the claims does not perform what is set forth in the preamble. Applicants respectfully traverse this rejection.

As the Federal Circuit has stated, “if the claim preamble is necessary to give life, meaning, and vitality to the claim, then the claim preamble should be construed as if in the balance of the claim.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999). In other words, the “claim preamble has the import that the claim as a whole suggests for it.” *Id.* The claim preamble and the body of the claim together make up the claim, and as such, the preamble “must be read in the context of the entire claim.” *Id.* The claim preamble and body of the claim “together . . . comprise the claim.” *Id.* Claim interpretation requires “that the method be practiced with the intent to achieve the objective stated in the preamble.” *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333 (Fed. Cir. 2003).

### **b. The Pending Claims are Not Indefinite Under 35 U.S.C. § 112**

Applicants respectfully assert that claims 1-22 are not indefinite. The Examiner indicates that the “body of the claim does not perform what is set forth in the preamble. . . . It is

not clear to one having ordinary skill in the art to understand how the use of performing sentence generation is similar to generating a summary of a plurality of documents . . .” [See Official Action dated 6/1/2004, p.2]. Applicants respectfully disagree. The preamble sets forth the purpose of the claimed method, which is to generate a summary of a plurality of documents. The body of the claim then sets forth steps for performing the claimed method. For example, performing sentence generation, as recited in the body of the claim, is clearly a step in the method for achieving this purpose. The recitation of performing sentence generation in claim 1 “gives life and meaning to the preamble’s statement of purpose,” such that it provides meaning to the summary of a plurality of documents. See *Jansen*, 342 F.3d at 1333. Moreover, the method of *performing sentence generation* is readily “understood in the context of the preamble statement,” because generating a summary of a plurality of documents is understood as one or more sentences generated from phrases in the phrase generation table. See *Pitney Bowes*, 182 F.3d at 1306. The method recited in claim 1 including, *inter alia*, “extracting phrases . . . from the plurality of documents,” and “performing sentence generation,” together with the stated purpose - “generating a summary of a plurality of documents” - as recited in the preamble, must be read “as one unified and internally consistent recitation of the claimed invention.” See *id.* Therefore, a purpose of sentence generation is to create a summary, which is readily understood when Claim 1 is read in its entirety. Accordingly, Applicants respectfully request withdrawal of the rejection to Claims 1-22 under 35 U.S.C. § 112.

**IX. CONCLUSION**

For at least the reasons indicated above, Appellant respectfully submits that the invention recited in the claims of the present application, as discussed above, is new, non-obvious and useful. Reversal of the Examiner's rejections of the claims is therefore respectfully requested.

Respectfully submitted,

Dated: January 24, 2005

By:



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**APPENDIX**

Claims as currently pending:

1. A method for generating a summary of a plurality of related documents in a collection comprising:

extracting phrases having focus elements from the plurality of documents;  
performing phrase intersection analysis on the extracted phrases to  
generate a phrase intersection table;

performing temporal processing on the phrases in the phrase intersection table; and

performing sentence generation using the phrases in the phrase intersection table.

2. The method of generating a summary as defined by claim 1, wherein the phrase intersection analysis comprises:

representing the phrases in tree structures having root nodes and children nodes;

selecting those tree structures with verb root nodes;

comparing the selected root nodes to the other root nodes to identify identical nodes;

applying paraphrasing rules to non-identical root nodes to determine if non identical nodes are equivalent; and

evaluating the children nodes of those tree structures where the parent nodes are identical or equivalent.

3. The method of claim 2, wherein the tree structure is a DSYNT tree structure.
4. The method of claim 2, wherein the paraphrasing rules are selected from the group consisting of ordering of sentence components, main clause versus a relative clause, different syntactic categories, change in grammatical features, omission of an empty head, transformation of one part of speech to another, and semantically related words.
5. The method of claim 1, wherein the temporal processing includes:
  - time stamping phrases based on a first occurrence of the phrase in the collection;
  - substituting date certain references for ambiguous temporal references;
  - ordering the phrases based on the time stamp; and
  - inserting a temporal marker if a temporal gap between phrases exceeds a threshold value.
6. The method of claim 1, further comprising a phrase divergence processing operation.
7. The method of claim 1, wherein the sentence generation includes mapping phrases to an input format of a language generation engine and operating the language generation engine.

8. A system for generating a summary of a plurality of related documents in a collection comprising:

a storage device for storing the documents in the collection;

a lexical database; and

a processing subsystem, the processing subsystem being operatively coupled to the storage device and the lexical database, the processing subsystem being programmed to access the documents in the storage device;

using the lexical database to extract phrases having focus elements from the plurality of documents;

performing phrase intersection analysis on the extracted phrases to generate a phrase intersection table;

performing temporal processing on the phrases in the phrase intersection table; and

performing sentence generation using the phrases in the phrase intersection table.

9. The system for generating a summary as defined by claim 8, wherein the phrase intersection analysis processing further comprises:

representing the phrases as data structures having root nodes and children nodes;

selecting those data structures with verb root nodes;

comparing the selected root nodes to the other root nodes to identify identical nodes;

applying paraphrasing rules to non-identical root nodes to  
determine if non identical nodes are equivalent; and  
evaluating the children nodes of those tree structures where the  
parent nodes are identical or equivalent.

10. The system of claim 9, wherein the data structure is a DSYNT tree structure.
11. The system of claim 9, wherein the paraphrasing rules are selected from the group consisting of ordering of sentence components, main clause versus a relative clause, different syntactic categories, change in grammatical features, omission of an empty head, transformation of one part of speech to another, and semantically related words.
12. The system of claim 8, wherein the temporal processing includes:  
time stamping phrases based on a first occurrence of the phrase in the collection;  
substituting date certain references for ambiguous temporal references;  
ordering the phrases based on the time stamp; and  
inserting a temporal marker if a temporal gap between phrases exceeds a threshold value.
13. The system of claim 8, further comprising a phrase divergence processing operation.

14. The system of claim 8, wherein the processing subsystem includes a language generation engine and wherein sentence generation includes mapping phrases to an input format of the language generation engine and then operating the language generation engine.

15. The system of claim 8, wherein the storage device for storing the documents in the collection is remotely located from the processing subsystem.

16. A computer readable media for programming a computer system to perform a method of generating a summary of a plurality of related documents in a collection comprising:

extracting phrases having focus elements from the plurality of documents;

performing phrase intersection analysis on the extracted phrases to

generate a phrase intersection table;

performing temporal processing on the phrases in the phrase intersection table; and

performing sentence generation using the phrases in the phrase intersection table.

17. The computer readable media of claim 16, wherein the phrase intersection analysis comprises:

representing the phrases in tree structures having root nodes and children nodes;

selecting those tree structures with verb root nodes;

comparing the selected root nodes to the other root nodes to identify identical nodes;

applying paraphrasing rules to non-identical root nodes to determine if non identical nodes are equivalent; and

evaluating the children nodes of those tree structures where the parent nodes are identical or equivalent.

18. The computer readable media of claim 17, wherein the tree structure is a DSYNT tree structure.

19. The computer readable media of claim 17, wherein the paraphrasing rules are selected from the group consisting of ordering of sentence components, main clause versus a relative clause, different syntactic categories, change in grammatical features, omission of an empty head, transformation of one part of speech to another, and semantically related words.

20. The computer readable media of claim 16, wherein the temporal processing includes:

time stamping phrases based on a first occurrence of the phrase in the collection;

substituting date certain references for ambiguous temporal references;

ordering the phrases based on the time stamp; and

inserting a temporal marker if a temporal gap between phrases exceeds a threshold value.

21. The computer readable media of claim 16, further comprising a phrase divergence processing operation.
22. The computer readable media of claim 16, wherein the sentence generation includes mapping phrases to an input format of a language generation engine and operating the language generation engine.